

SECTION V-B - FM BROADCAST ENGINEERING DATA (Page 5)

Radial bearing (degrees True)	Height of radiation center above average elevation of radial from 8 to 16 km (meters)	Predicted Distances	
		To the 616 mV/m contour (kilometers)	To the 1 mV/m contour (kilometers)
212 °	139	19.3	32.8
0	86	10.8	19.5
45	58	12.4	22.1
90	67	13.1	23.5
135	81	14.4	25.6
180	107	16.8	29.2
225	135	19.0	32.4
270	134	18.9	32.3
315	128	12.9	23.3

*Radial through principal community. If not one of the major radials. This radial should NOT be included in the calculation of HAAT.

20. Environmental Statement (See 47 C.F.R. Section 1.1301 et seq.)

Would a Commission grant of this application come within Section 11807 of the FCC Rules, such that it may have a significant environmental impact? ☐ Yes ☒ No


If you answer Yes, submit as an Exhibit an Environmental Assessment required by Section 11811.

Exhibit No.

If No, explain briefly why not. See Exhibit 6

CERTIFICATION

I certify that I have prepared this Section of this application on behalf of the applicant, and that after such preparation, I have examined the foregoing and found it to be accurate and true to the best of my knowledge and belief.

Name (Typed or Printed) Michael B. Degitz	Relationship to Applicant (e.g., Consulting Engineer) Consulting Engineer
Signature 	Address (Include ZIP Code) Moffet, Larson & Johnson, Inc. 5203 Leesburg Pike, Suite 800 Falls Church, VA 22041
Date 3/5/92	Telephone No. (Include Area Code) (703) 824-5660

ENGINEERING REPORT

MOFFET, LARSON & JOHNSON, INC.

5203 LEESSBURG PIKE

CONSULTING TELECOMMUNICATIONS ENGINEERS

FALLS CHURCH, VA 22041

Kyong Ja Matchak
Westerville, Ohio

ENGINEERING STATEMENT

I. INTRODUCTION

NOTE: NOT DRAWN TO SCALE

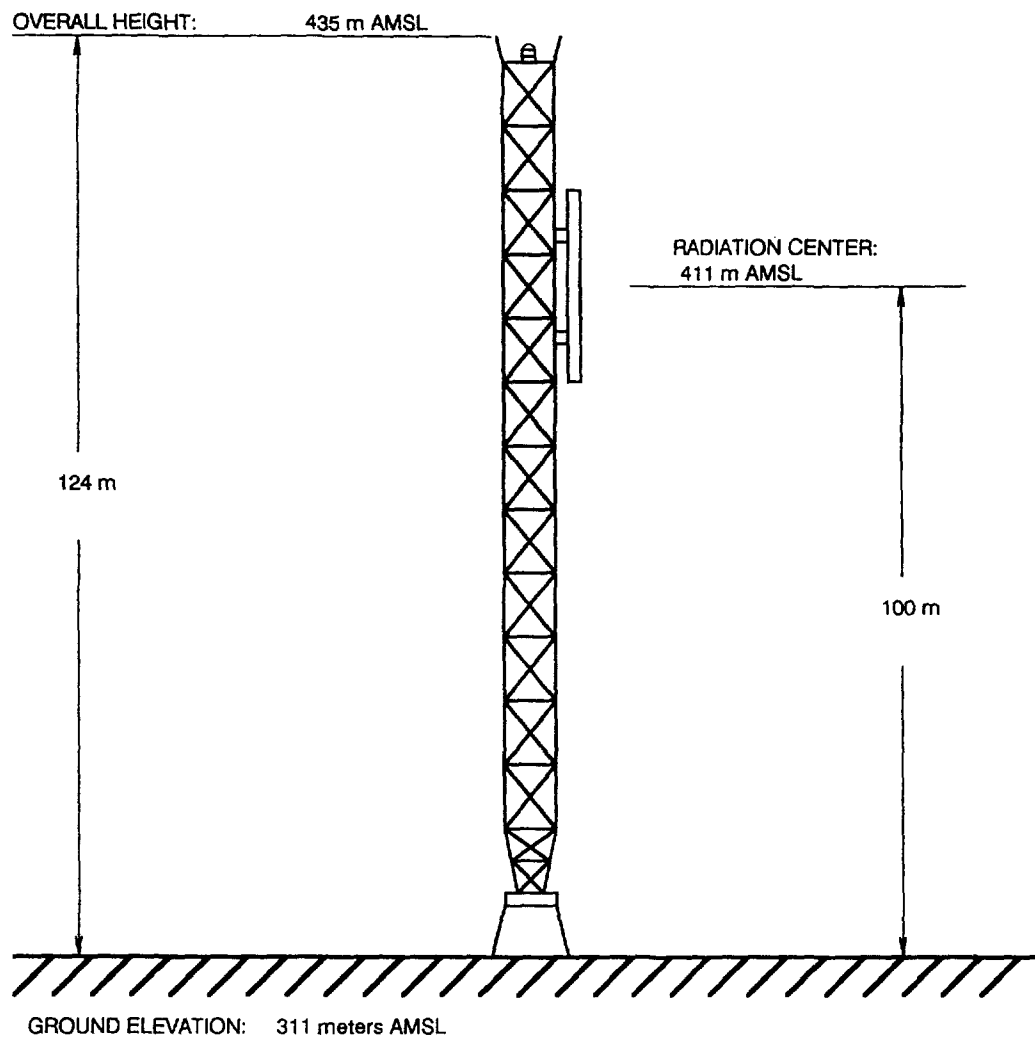


EXHIBIT NO. 1

NEW-FM

WESTERVILLE, OHIO

VERTICAL PLAN SKETCH OF PROPOSED ANTENNA AND SUPPORT STRUCTURE

MARCH 1992

MOFFET, LARSON & JOHNSON, INC.

MOFFET, LARSON & JOHNSON, INC.

5203 LEEGBURG PIKE

CONSULTING TELECOMMUNICATIONS ENGINEERS

FALLS CHURCH, VA 22041

Kyong Ja Matchak
Westerville, Ohio

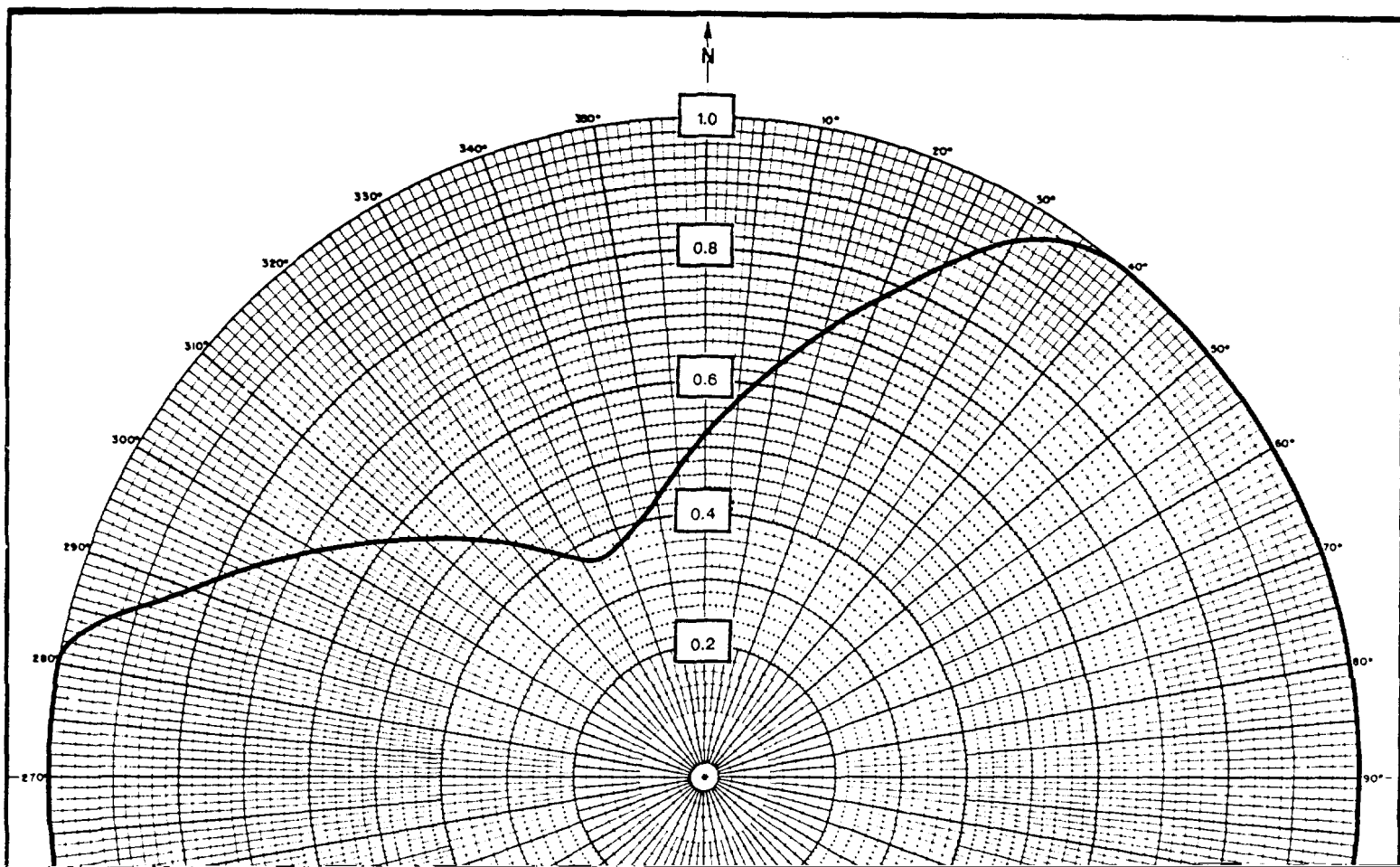
EXHIBIT 2-A

II. FURTHER RESPONSE TO FCC FORM 301, SECTION V-B, PART 10

The proposed facility will operate with a directional antenna. Exhibit 2-B is the composite horizontal relative field pattern for the proposed pattern. Exhibit 2-C is a tabulation of the composite horizontal relative field pattern.

The antenna will be side-mounted on the support structure as specified by the manufacturer.

The antenna will not be mounted on the top of an antenna tower which includes a top-mounted platform larger than the nominal cross-section area of



MOFFET, LARSON & JOHNSON, INC.

5203 LEEBURG PIKE

CONSULTING TELECOMMUNICATIONS ENGINEERS

FALLS CHURCH, VA 22041

Kyong Ja Matchak
Westerville, Ohio

EXHIBIT 2-C

Horizontal Relative Field Pattern Tabulation

Bearing	Relative Field	Bearing	Relative Field
0	0.523	180	1.000 **
10	0.636	190	1.000 **
20	0.774	200	1.000 **
30	0.941	210	1.000 **
40	1.000 **	220	1.000 **
50	1.000 **	230	1.000 **
60	1.000 **	240	1.000 **
70	1.000 **	250	1.000 **
80	1.000 **	260	1.000 **
90	1.000 **	270	1.000 **
100	1.000 **	280	1.000 **
110	1.000 **	290	0.831
120	1.000 **	300	0.684
130	1.000 **	310	0.562
140	1.000 **	320	0.462
150	1.000 **	330	0.380 *
160	1.000 **	340	0.380 *
170	1.000 **	350	0.430

* Minimum

** Maximum

MOFFET, LARSON & JOHNSON, INC.

5203 LEEBURG PIKE

CONSULTING TELECOMMUNICATIONS ENGINEERS

FALLS CHURCH, VA 22041

Kyong Ja Matchak
Westerville, Ohio

EXHIBIT 3-AII. FURTHER RESPONSE TO FCC FORM 301, SECTION V-B, PART 13(c)

Exhibit 3-B is an allocation study for the proposed site. As shown on Exhibit 3-B, this application is 6.8 kilometers short-spaced to WTTF-FM, Tiffin, Ohio.

Exhibit 3-C tabulates the calculation of the protected and interfering contours of this proposal and WTTF-FM. WTTF-FM operates with 50 kW effective radiated power at 131 meters height above average terrain. The WTTF-FM antenna radiation is 364 meters AMSL. The WTTF-FM average elevations on file at the Commission were calculated using an unknown source of terrain information, it is assumed that the source was 7½ topographic maps. An antenna radiation center of 383 meters AMSL was used herein to increase the height above terrain to the maximum for Class B, 364m AMSL + (150m AMSL - 131m AMSL). Because the FCC staff uses 30 second terrain data to analyze contour protection, 30 second terrain data was used herein, this results in a height above average terrain of 156 meters.

Exhibit 3-D is a copy of a map showing the location of the proposed and WTTF-FM protected and interfering contours. As shown on Exhibit 3-D prohibited contour overlap will not result.

Moffet, Larson, & Johnson, Inc.

Page: 1
Date: 3/03/92

Study Name : Westerville, Ohio
Channel : 280A
Coordinates : N 40 14 4.0 W 82 50 20.0
Separations : FM Zone 1 - Commercial

Call	City	&	State	Stat	File - number	Chan	ERP	HAAT	Zn	Latitude	Longitude	Bear	Dist	Req'd	Clear
--- kilometers ---															
WKJ	CHILLICOTHE		OH	APPM	BPH	9002261B	227B	50.0	492	1 39 35 30.0	83 6 38.0	198.0	75.05	15.0	60.05
D90-318	NEW WASHINGTON		OH	PADD	RM	7311	227A			1 41 2 30.0	82 55 43.0	355.2	89.96	10.0	79.96
D90-318	REYNOLDSBURG		OH	PADD	RM	7516	227B			1 39 53 32.0	83 2 44.0	204.9	41.89	15.0	26.89
WDEQFM	DE GRAFF		OH	LIC	BLD	840202AB	*277D	0.01	3	1 40 18 48.0	83 55 6.0	275.8	92.23	25.7*	66.48
WSWZ	LANCASTER		OH	LIC	BLH	901015KD	278A	5.43	328	2 39 43 58.0	82 35 43.0	159.5	59.46	31.0	28.46
WTTFFM	TIFFIN		OH	LIC	BLH	850715KW	279B	50.0	430	1 41 8 20.0	83 14 45.0	341.3	106.16	113.0	-6.84
WYMJFM	BEAVERCREEK		OH	LIC	BLH	841029CB	280A	1.15	522	1 39 44 12.0	84 9 25.0	244.2	125.42	115.0	10.42
NEW	WESTERVILLE		OH	APPM	BPH	911230MC	280A	2.52	358	1 40 14 4.0	82 50 20.0	.0	.00	115.0	-115.00
NEW	WESTERVILLE		OH	APP	BPH	911230MF	280A	2.57	325	1 40 14 4.0	82 50 20.0	.0	.00	115.0	-115.00
NEW	WESTERVILLE		OH	APP	BPH	911230MB	280A	2.50	358	1 40 14 4.0	82 50 20.0	.0	.00	115.0	-115.00
NEW	WESTERVILLE		OH	APP	BPH	911230MD	280A	4.30	387	1 40 14 4.0	82 50 20.0	.0	.00	115.0	-115.00
NEW	WESTERVILLE		OH	APP	BPH	911230ME	280A	2.57	356	1 40 14 4.0	82 50 20.0	.0	.00	115.0	-115.00
NEW	WESTERVILLE		OH	APP	BPH	911231MC	280A	4.10	387	1 40 14 4.0	82 50 20.0	.0	.00	115.0	-115.00
NEW	WESTERVILLE		OH	APP	BPH	911231MA	280A	6.00	328	1 40 14 4.0	82 50 20.0	.0	.00	115.0	-115.00
NEW	WESTERVILLE		OH	APP	BPH	911230MA	280A	4.30	387	1 40 14 4.0	82 50 20.0	.0	.00	115.0	-115.00
NEW	WESTERVILLE		OH	APP	BPH	911231MB	280A	6.00	328	1 40 11 33.0	82 45 7.0	122.3	8.74	115.0	-106.26
WATQFM	NEW MARTINSVILLE		WV	LIC	BLH	7626	280A	3.00	300	1 39 40 40.0	80 52 42.0	109.7	178.57	115.0	63.57
WQAL	CLEVELAND		OH	LIC	BLH	860219KB	281B	11.0	1060	1 41 22 45.3	81 43 12.0	36.1	158.35	113.0	45.35
WQAL	CLEVELAND		OH	CP	BPH	9108261B	281B	11.0	1060	1 41 22 45.0	81 43 12.0	36.1	158.35	113.0	45.35
WPAYFM	PORTSMOUTH		OH	LIC	BLH	890612KC	281C	100	1000	2 38 43 20.0	83 0 5.0	184.8	168.47	165.0	3.47
NEW	RICHWOOD		OH	APP	BPH	920113MC	282A	3.00	328	1 40 19 46.0	83 14 39.0	287.2	36.04	31.0	5.04
NEW	RICHWOOD		OH	APP	BPH	920113MD	282A	6.00	328	1 40 21 52.0	83 15 39.0	292.1	38.67	31.0	7.67
NEW	RICHWOOD		OH	APP	BPH	920115ME	282A	5.30	341	1 40 18 23.0	83 19 44.0	281.1	42.44	31.0	11.44
	RICHWOOD		OH	ALC			282A			1 40 25 36.0	83 18 .0	298.8	44.62	31.0	13.62
	WEST LIBERTY		OH	ALC			282A			2 40 25 36.0	83 18 .0	298.8	44.62	31.0	13.62
WQKT	WOOSTER		OH	LIC	BLH	790215AH	283B	52.0	330	1 40 47 31.0	81 54 17.0	51.6	100.50	69.0	31.50

End of Study

EXHIBIT 3-B

.)

ENGINEERING REPORT

MOFFET, LARSON & JOHNSON, INC.

5203 LEESBURG PIKE

CONSULTING TELECOMMUNICATIONS ENGINEERS

FALLS CHURCH, VA 22041

Kyong Ja Matchak
Westerville, Ohio

EXHIBIT 3-C

Tabulation of Distances To Contours
Proposed - Westerville, Ohio

Maximum Effective Radiated Power 6.00 kW 7.78 dBk
Antenna Radiation Center: 411. Meters AMSL

Bear Deg True	HAAT Meters	Ant Gain dB	Distances to Contours (km)		
			ERP dBk	70. dBu f(50,50)	60. dBu f(50,50)
0.0	86	-5.63	2.15	10.8	19.5
10.0	80*	-3.93	3.85	11.5	20.6
20.0	74*	-2.23	5.55	12.1	21.8
30.0	67*	-0.53	7.25	12.8	22.9
40.0	61*	0.00	7.78	12.6	22.6
45.0	58	0.00	7.78	12.4	22.1
50.0	59*	0.00	7.78	12.4	22.3
60.0	61*	0.00	7.78	12.6	22.6
70.0	63*	0.00	7.78	12.8	22.9
80.0	65*	0.00	7.78	13.0	23.2
90.0	67	0.00	7.78	13.1	23.5
100.0	70*	0.00	7.78	13.4	24.0
110.0	73*	0.00	7.78	13.7	24.5
120.0	76*	0.00	7.78	14.0	24.9
130.0	79*	0.00	7.78	14.2	25.4
135.0	81	0.00	7.78	14.4	25.6
140.0	84*	0.00	7.78	14.6	26.0
150.0	90*	0.00	7.78	15.2	26.9
160.0	95*	0.00	7.78	15.7	27.7
170.0	101*	0.00	7.78	16.3	28.5
180.0	107	0.00	7.78	16.8	29.2
190.0	117*	0.00	7.78	17.7	30.4
200.0	127*	0.00	7.78	18.4	31.5
210.0	137*	0.00	7.78	19.1	32.6
212.0	139%	0.00	7.78	19.3	32.8
220.0	137*	0.00	7.78	19.1	32.5
225.0	135	0.00	7.78	19.0	32.4
230.0	135*	0.00	7.78	19.0	32.4
240.0	135*	0.00	7.78	19.0	32.3
250.0	134*	0.00	7.78	19.0	32.3
260.0	134*	0.00	7.78	18.9	32.3
270.0	134	0.00	7.78	18.9	32.3

ENGINEERING REPORT

MOFFET, LARSON & JOHNSON, INC.

5203 LEEBURG PIKE

CONSULTING TELECOMMUNICATIONS ENGINEERS

FALLS CHURCH, VA 22041

Kyong Ja Matchak
Westerville, Ohio

EXHIBIT 3-C (Cont)

Tabulation of Distances To Contours
Proposed - Westerville, Ohio

Maximum Effective Radiated Power 6.00 kW 7.78 dBk
Antenna Radiation Center: 411. Meters AMSL

Bear Deg True	HAAT Meters	Ant Gain dB	ERP dBk	Distances to Contours (km)	
				70. dBu f(50,50)	60. dBu f(50,50)
280.0	133*	0.00	7.78	18.8	32.1
290.0	131*	-1.61	6.17	17.0	29.3
300.0	130*	-3.30	4.48	15.1	26.7
310.0	129*	-5.01	2.77	13.6	24.4
315.0	128	-5.81	1.97	12.9	23.3
320.0	123*	-6.71	1.07	12.1	21.9
330.0	114*	-8.40	-0.62	10.6	19.2
340.0	105*	-8.40	-0.62	10.2	18.4
350.0	95*	-7.33	0.45	10.3	18.6

100					

Notes:

- * Interpolated Height Data - Not Included in Avg Elevation
% Not Included in Avg Elevation

ENGINEERING REPORT

MOFFET, LARSON & JOHNSON, INC.

5203 LEEBURG PIKE

CONSULTING TELECOMMUNICATIONS ENGINEERS

FALLS CHURCH, VA 22041

Kyong Ja Matchak
Westerville, Ohio

EXHIBIT 3-C (Cont)

Tabulation of Distances To Contours
Proposed - Westerville, Ohio

Maximum Effective Radiated Power 6.00 kW 7.78 dBk
Antenna Radiation Center: 411. Meters AMSL

Bear Deg True	HAAT Meters	Ant Gain dB	ERP dBk	Distances to Contours (km) 48. dBu f(50,10)
0.0	86	-5.63	2.15	41.7
10.0	80*	-3.93	3.85	44.4
20.0	74*	-2.23	5.55	47.4
30.0	67*	-0.53	7.25	50.7
40.0	61*	0.00	7.78	50.5
45.0	58	0.00	7.78	49.4
50.0	59*	0.00	7.78	49.8
60.0	61*	0.00	7.78	50.4
70.0	63*	0.00	7.78	51.1
80.0	65*	0.00	7.78	51.6
90.0	67	0.00	7.78	52.2
100.0	70*	0.00	7.78	53.1
110.0	73*	0.00	7.78	53.9
120.0	76*	0.00	7.78	54.6
130.0	79*	0.00	7.78	55.4
135.0	81	0.00	7.78	55.7
140.0	84*	0.00	7.78	56.4
150.0	90*	0.00	7.78	57.6
160.0	95*	0.00	7.78	58.7
170.0	101*	0.00	7.78	59.8
180.0	107	0.00	7.78	60.9
190.0	113*	0.00	7.78	61.9
200.0	119*	0.00	7.78	63.0
210.0	126*	0.00	7.78	64.0
220.0	132*	0.00	7.78	65.1
225.0	135	0.00	7.78	65.6
230.0	135*	0.00	7.78	65.6
240.0	135*	0.00	7.78	65.5
250.0	134*	0.00	7.78	65.5
260.0	134*	0.00	7.78	65.4
270.0	134	0.00	7.78	65.4
280.0	133*	0.00	7.78	65.2
290.0	131*	-1.61	6.17	60.3

ENGINEERING REPORT

MOFFET, LARSON & JOHNSON, INC.

5203 LEESBURG PIKE

CONSULTING TELECOMMUNICATIONS ENGINEERS

FALLS CHURCH, VA 22041

Kyong Ja Matchak
Westerville, Ohio

EXHIBIT 3-C (Cont)

Tabulation of Distances To Contours
Proposed - Westerville, Ohio

Maximum Effective Radiated Power 6.00 kW 7.78 dBk
Antenna Radiation Center: 411. Meters AMSL

Bear Deg True	HAAT Meters	Ant Gain dB	ERP dBk	Distances to Contours (km) 48. dBu f(50,10)
300.0	130*	-3.30	4.48	55.5
310.0	129*	-5.01	2.77	50.9
315.0	128	-5.81	1.97	48.8
320.0	123*	-6.71	1.07	45.9
330.0	114*	-8.40	-0.62	40.6
340.0	105*	-8.40	-0.62	39.0
350.0	95*	-7.33	0.45	39.7

	100			

Notes:

* Interpolated Height Data - Not Included in Avg Elevation

ENGINEERING REPORT

MOFFET, LARSON & JOHNSON, INC.

5203 LEESBURG PIKE

CONSULTING TELECOMMUNICATIONS ENGINEERS

FALLS CHURCH, VA 22041

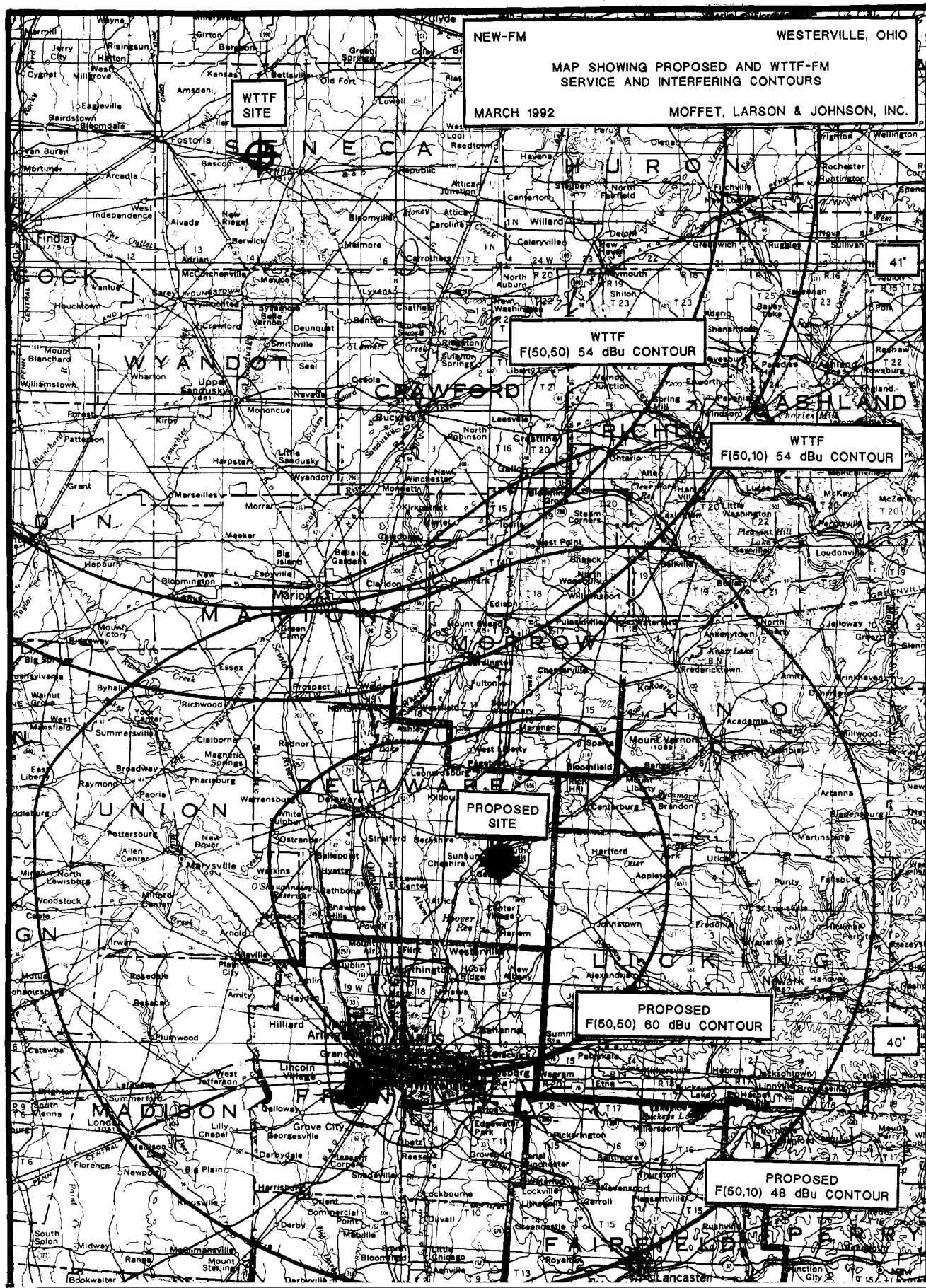
Kyong Ja Matchak
Westerville, Ohio

EXHIBIT 3-C (Cont)

Tabulation of Distances To Contours
WFFT Tiffin, Ohio

Maximum Effective Radiated Power 50.00 kW 16.99 dBk
Antenna Radiation Center: 383. Meters AMSL

Bear Deg True			Ant Gain dB	ERP dBk	ERP kW	Distances to Contours (km)	
	AE Meters	HAAT Meters				54. dBu f(50,50)	54. dBu f(50,10)
0.0	216	167	0.00	16.99	50.00	67.2	80.5
45.0	206	177	0.00	16.99	50.00	68.3	81.9
90.0	230	153	0.00	16.99	50.00	65.5	78.6
135.0	235	148	0.00	16.99	50.00	64.8	77.8
180.0	241	142	0.00	16.99	50.00	63.9	76.9
225.0	243	140	0.00	16.99	50.00	63.7	76.6
270.0	226	157	0.00	16.99	50.00	66.0	79.1
315.0	220	163	0.00	16.99	50.00	66.7	80.0
	-----	-----					
	227	156					



MOFFET, LARSON & JOHNSON, INC.

5203 LEESBURG PIKE

CONSULTING TELECOMMUNICATIONS ENGINEERS

FALLS CHURCH, VA 22041

Kyong Ja Matchak
Westerville, Ohio

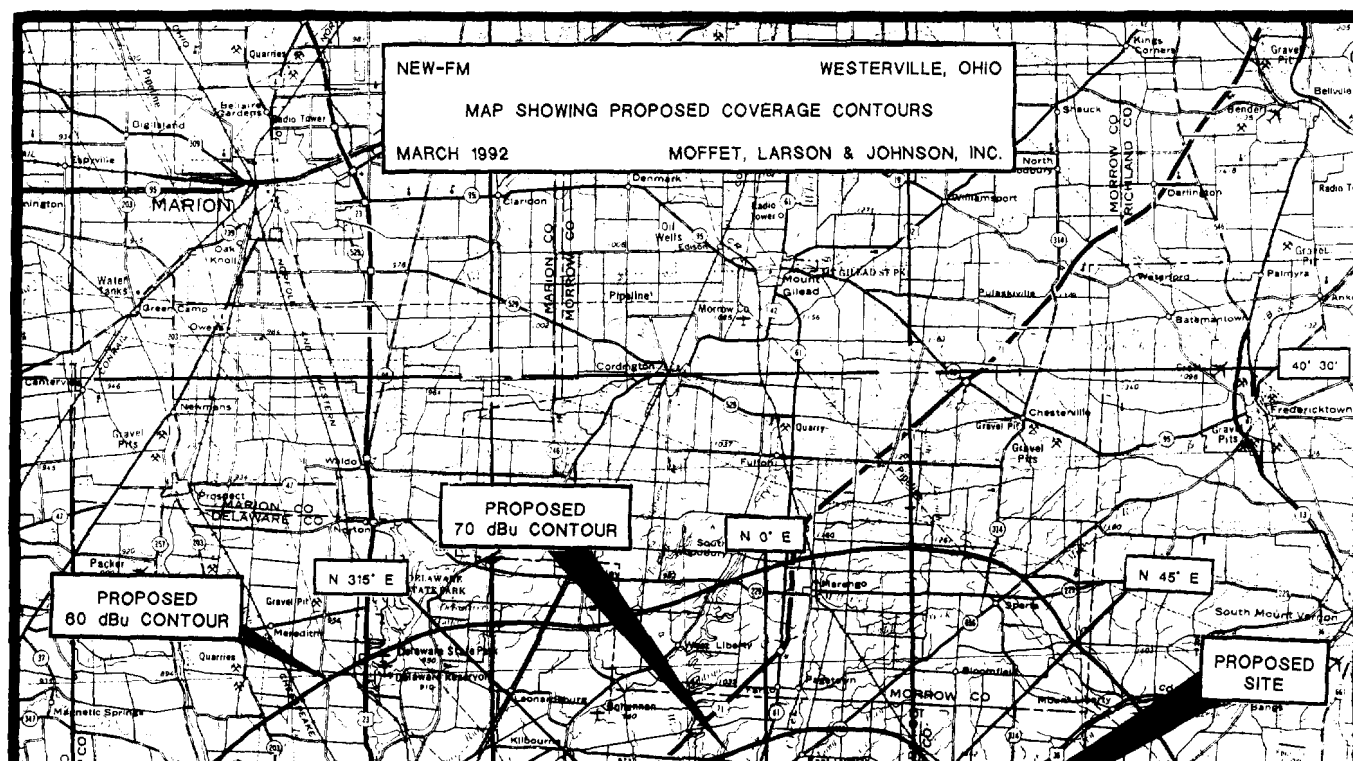
EXHIBIT 4

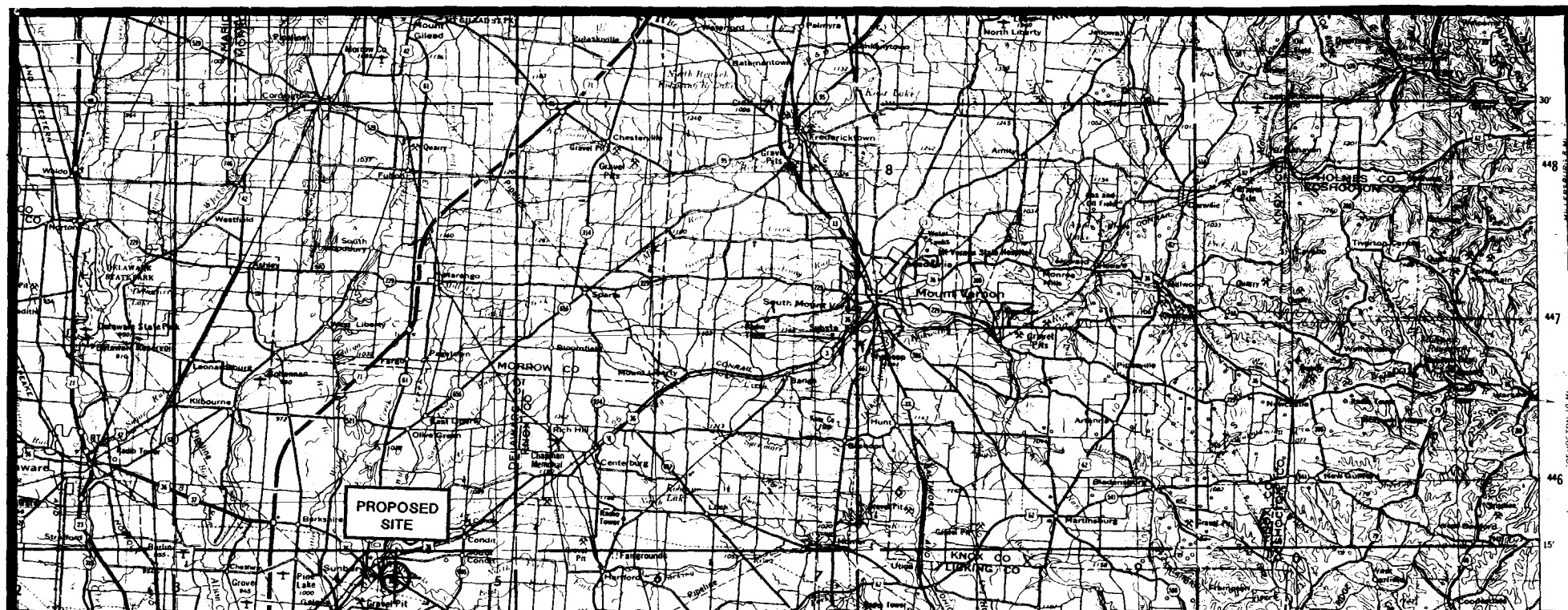
II. FURTHER RESPONSE TO FCC FORM 301, SECTION V-B, PART 14

No proposed or authorized FM and TV facilities are located within 10 kilometers of the proposed site.

Objectional intermodulation interference is not expected to result from this proposed transmit facility and any other transmit facilities.

The applicant accepts full responsibility, as specified in 47 C.F.R. 73.318, for the elimination of any objectionable blanketing interference.





MOFFET, LARSON & JOHNSON, INC.

5203 LEECSBURG PIKE

CONSULTING TELECOMMUNICATIONS ENGINEERS

FALLS CHURCH, VA 22041

Kyong Ja Matchak
Westerville, Ohio

EXHIBIT 6

IV. FURTHER RESPONSE TO FCC FORM 301, SECTION V-B, PART 20

The antenna will be side mounted on an existing structure and this proposal does not involve a site location specified under Paragraph 1.1307a(1)-(8) of the FCC's Rules.

The electromagnetic radiation from this proposal and all of the other facilities in the immediate vicinity will be below the levels specified in the Human Exposure Guide (ANSI C95.1, 1982) at ground level.

The antenna input power will be reduced or shut off as necessary when authorized persons climb the proposed support tower to ensure that these persons are not subject to electromagnetic radiation that exceeds the ANSI limit.

Therefore, this application is categorically excluded from environmental processing.

MOFFET, LARSON & JOHNSON, INC.

5203 LEEsburg PIKE

CONSULTING TELECOMMUNICATIONS ENGINEERS

FALLS CHURCH, VA 22041

Kyong Ja Matchak
Westerville, Ohio

A F F I D A V I T

COUNTY OF FAIRFAX)
) SS:
COMMONWEALTH OF VIRGINIA)

WALLACE E. JOHNSON, being duly sworn upon oath deposes and says:

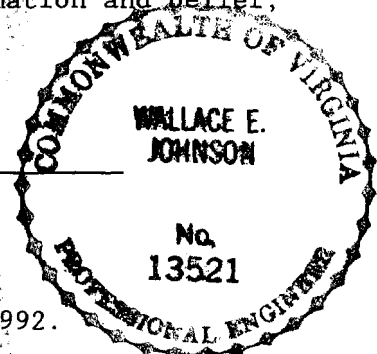
That his qualifications are a matter of record with the Federal Communications Commission;

That he is a registered professional engineer in the Commonwealth of Virginia and the District of Columbia and is the President of the firm of Moffet, Larson & Johnson, Inc.;

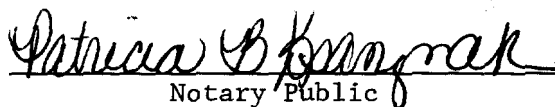
That this firm has been retained by Kyong Ja Matchak to prepare this engineering statement;

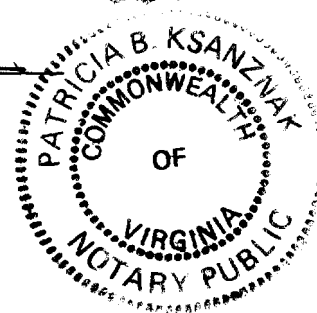
That he has either prepared or directly supervised the preparation of all technical information contained in this engineering statement; and that the facts stated in this engineering statement are true of his knowledge, except as to such statements as are herein stated to be on information and belief, and as to such statements he believes them to be true.


Wallace E. Johnson



Subscribed and sworn to before me this 5th day of March, 1992.


Notary Public



My Commission expires March 31, 1995.